

RULE 1126

Magnet Wire Coating Operations

(a) Applicability

This rule applies to all coating operations on magnet wire, where the wire is continuously drawn through a coating applicator.

(b) Definitions

For the purpose of this rule, the following definitions shall apply:

- (1) AEROSOL COATING PRODUCT is a pressurized coating product containing pigments or resins that is dispensed by means of a propellant, and is packaged in a disposable can for hand-held application.
- (2) EXEMPT COMPOUNDS are any of the following compounds:
 - (A) Group I
 - trifluoromethane (HFC-23)
 - pentafluoroethane (HFC-125)
 - 1,1,2,2-tetrafluoroethane (HFC-134)
 - tetrafluoroethane (HFC-134a)
 - 1,1,1-trifluoroethane (HFC-143a)
 - 1,1-difluoroethane (HFC-152a)
 - chlorodifluoromethane (HCFC-22)
 - dichlorotrifluoroethane (HCFC-123)
 - 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124)
 - dichlorofluoroethane (HCFC-141b)
 - chlorodifluoroethane (HCFC-142b)
 - cyclic, branched, or linear, completely fluorinated alkanes
 - cyclic, branched, or linear, completely fluorinated ethers with no unsaturations
 - cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations
 - sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine

- (B) Group II
 methylene chloride
 1,1,1-trichloroethane (methyl chloroform)
 trichlorotrifluoroethane (CFC-113)
 dichlorodifluoromethane (CFC-12)
 trichlorofluoromethane (CFC-11)
 dichlorotetrafluoroethane (CFC-114)
 chloropentafluoroethane (CFC-115)

The use of Group II compounds and/or carbon tetrachloride may be restricted in the future because they are toxic, potentially toxic, upper-atmosphere ozone depleters, or cause other environmental impacts. By January 1, 1996, production of chlorofluorocarbons (CFC), 1,1,1-trichloroethane (methyl chloroform), and carbon tetrachloride will be phased out in accordance with the Code of Federal Regulations Title 40, Part 82 (December 10, 1993).

- (3) **GRAMS OF VOC PER LITER OF COATING, LESS WATER AND LESS EXEMPT COMPOUNDS** is the weight of VOC per combined volume of VOC and coating solids and can be calculated by the following equation:

$$\begin{array}{l} \text{Grams of VOC per Liter of Coating,} \\ \text{Less Water and Less Exempt Compounds} \end{array} \equiv \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Where: W_s = weight of volatile compounds in grams
 W_w = weight of water in grams
 W_{es} = weight of exempt compounds in grams
 V_m = volume of material in liters
 V_w = volume of water in liters
 V_{es} = volume of exempt compounds in liters

- (4) **MAGNET WIRE** is wire used in electro-magnetic field application in electrical equipment, such as transformers, motors, generators, and magnetic tape recorders.
- (5) **MAGNET WIRE COATING OPERATIONS** is the application of any coating on magnet wire, where the wire is continuously drawn through a coating applicator.
- (6) **SOLVENT CLEANING OPERATION** is the removal of loosely held uncured adhesives, uncured inks, uncured coatings, and contaminants. Contaminants include, but are not limited to, dirt, soil, and grease from parts, products, tools, machinery, equipment, and general work areas. In a cleaning process which consists of a series of cleaning methods, each distinct method shall constitute a separate solvent cleaning operation.

- (7) VOLATILE ORGANIC COMPOUND (VOC) is defined as any volatile compound containing the element carbon, excluding methane, carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, ammonium carbonate, and exempt compounds.

(c) Requirements

- (1) Any person shall not use or apply any magnet wire coating which contains more than 200 grams VOC per liter (1.67 lb/gal) of coating less water and less exempt compounds, or
- (2) Any person applying magnet wire coating may comply with the provisions of paragraph (c)(1) by using an emission control system, for reducing emissions of VOC, which has been approved in writing by the Executive Officer.
 - (A) The emission control system shall achieve at least 90 percent overall efficiency by direct incineration at 1499°F or higher, or
 - (B) The approved system shall reduce the VOC emissions when using non-compliant coatings to an equivalent or greater level that would be achieved by the provisions in paragraph (c)(1). The required efficiency of an emission control system at which an equivalent or greater level of VOC reduction will be achieved shall be calculated by the following equation:

$$C. E. = \left[1 - \left\{ \frac{(VOC_{LWc})}{(VOC_{LWn,Max})} \times \frac{1 - (VOC_{LWn,Max}/D_{n,Max})}{1 - (VOC_{LWc}/D_c)} \right\} \right] \times 100$$

Where:	C.E.	=	Control Efficiency, percent
	VOC _{LWc}	=	VOC Limit of Rule 1126, less water and less exempt compounds, pursuant to subdivision (c).
	VOC _{LWn,Max}	=	Maximum VOC content of non-compliant coating used in conjunction with a control device, less water and less exempt compounds.
	D _{n,Max}	=	Density of solvent, reducer, or thinner contained in the non-compliant coating, containing the maximum VOC content of the multicomponent coating.
	D _c	=	Density of corresponding solvent, reducer, or thinner used in the compliant coating system = 880g/L.

(3) Solvent Cleaning Operations; Storage and Disposal of VOC-Containing Materials

All solvent cleaning operations and the storage and disposal of VOC-containing materials used in solvent cleaning operations shall be carried out pursuant to Rule 1171 - Solvent Cleaning Operations.

(4) Recordkeeping

Records shall be maintained pursuant to Rule 109.

(d) Test Methods

(1) Determination of VOC Content

The VOC content of coatings subject to the provisions of this rule shall be determined by using:

(A) United States Environmental Protection Agency (USEPA) Reference Method 24, (Code of Federal Regulations Title 40, Part 60, Appendix A). The exempt compound content shall be determined by SCAQMD Test Method 303 (Determination of Exempt Compounds) contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual; or,

(B) SCAQMD Test Method 304 [Determination of Volatile Organic Compounds (VOC) in Various Materials] contained in the SCAQMD "Laboratory Methods of Analysis for Enforcement Samples" manual.

(C) Exempt Perfluorocarbon Compounds

The following classes of compounds:

cyclic, branched, or linear, completely fluorinated alkanes;

cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

sulfur-containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine,

will be analyzed as exempt compounds for compliance with paragraph (c)(1) only when manufacturers specify which individual compounds are used in the coating formulation. In addition, the manufacturers shall identify the USEPA, California Air Resources Board, and the SCAQMD approved test methods used to quantify the amount of each exempt compound.

(2) Determination of Efficiency of Emission Control System

- (A) The efficiency of the collection device of the emission control system as specified in paragraph (c)(2) shall be determined by the USEPA method cited in 55 Federal Register 26865 (June 29, 1990), or any other method approved by the USEPA, the California Air Resources Board, and the SCAQMD.
- (B) The efficiency of the control device of the emission control system as specified in paragraph (c)(2) and the VOC content in the control device exhaust gases, measured and calculated as carbon, shall be determined by USEPA Test Methods 25, 25A, or SCAQMD Method 25.1 (Determination of Total Gaseous Non-Methane Organic Emissions as Carbon) as applicable. USEPA Test Method 18, or ARB Method 422 shall be used to determine emissions of exempt compounds.

(3) Multiple Test Methods

When more than one test method or set of test methods are specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods shall constitute a violation of the rule.

- (4) All test methods referenced in this section shall be the most recently approved version.

(e) Exemptions

- (1) The provisions of paragraphs (c)(1), (c)(2), and (c)(3) shall not apply to:
 - (A) Magnet wire coating operations which emit into the atmosphere less than 1 kg (2.2 lbs) per hour, and not more than 5 kg (11 lbs) per day of volatile organic compounds.
 - (B) Coating of electrical machinery and equipment sub-assemblies, such as motor housings.
- (2) The provisions of this rule shall not apply to aerosol coating products.

[SIP: Approved 6/13/95, 60 FR 31084, 40 CFR 52.220(c)(215)(i)(A)(5); Limited Approval/Disapproval 4/14/94, 59 FR 17698, 40 CFR 52.220(c)(189)(i)(A)(4); Approved _____, _____, 40 CFR 52.220(c)(159)(v)(A); Approved 10/11/83, 48 FR 46047, 40 CFR 52.220(c)(121)(i)(B); Approved 1/21/81, 46 FR 5965, 40 CFR 52.220(c)(69)(i)]

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